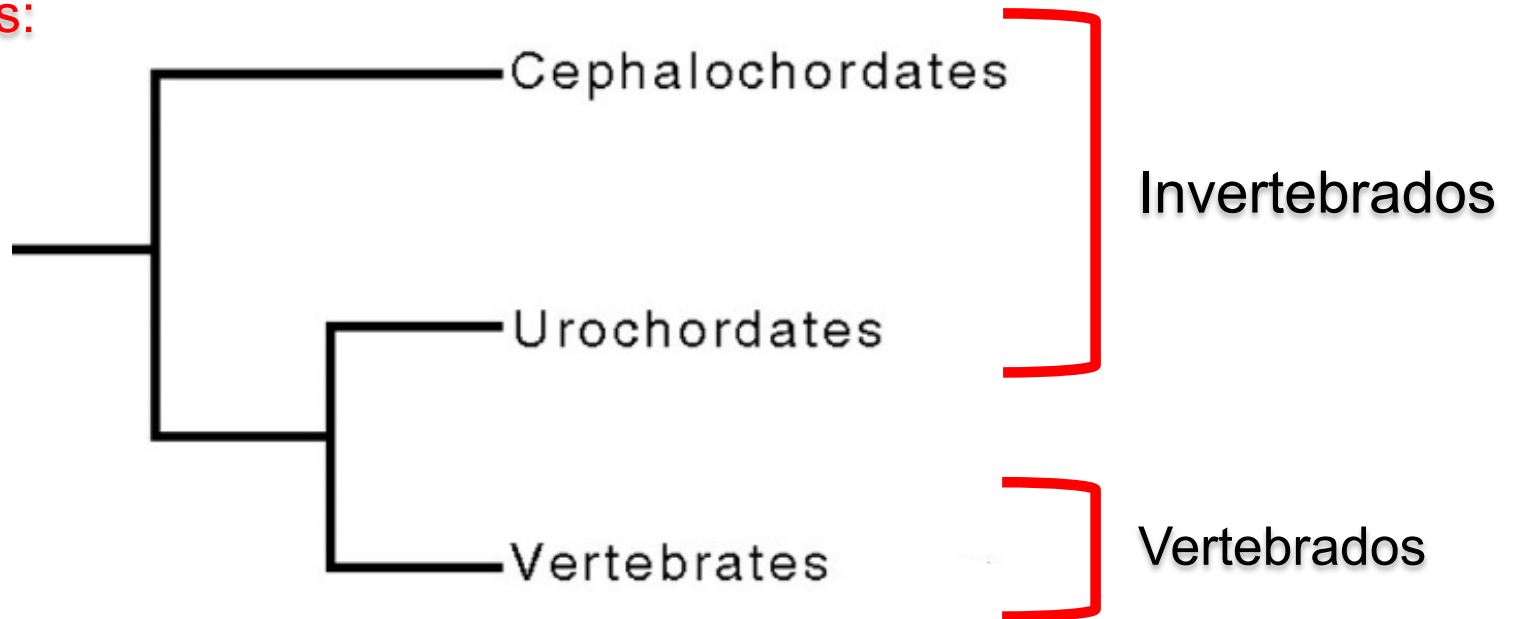


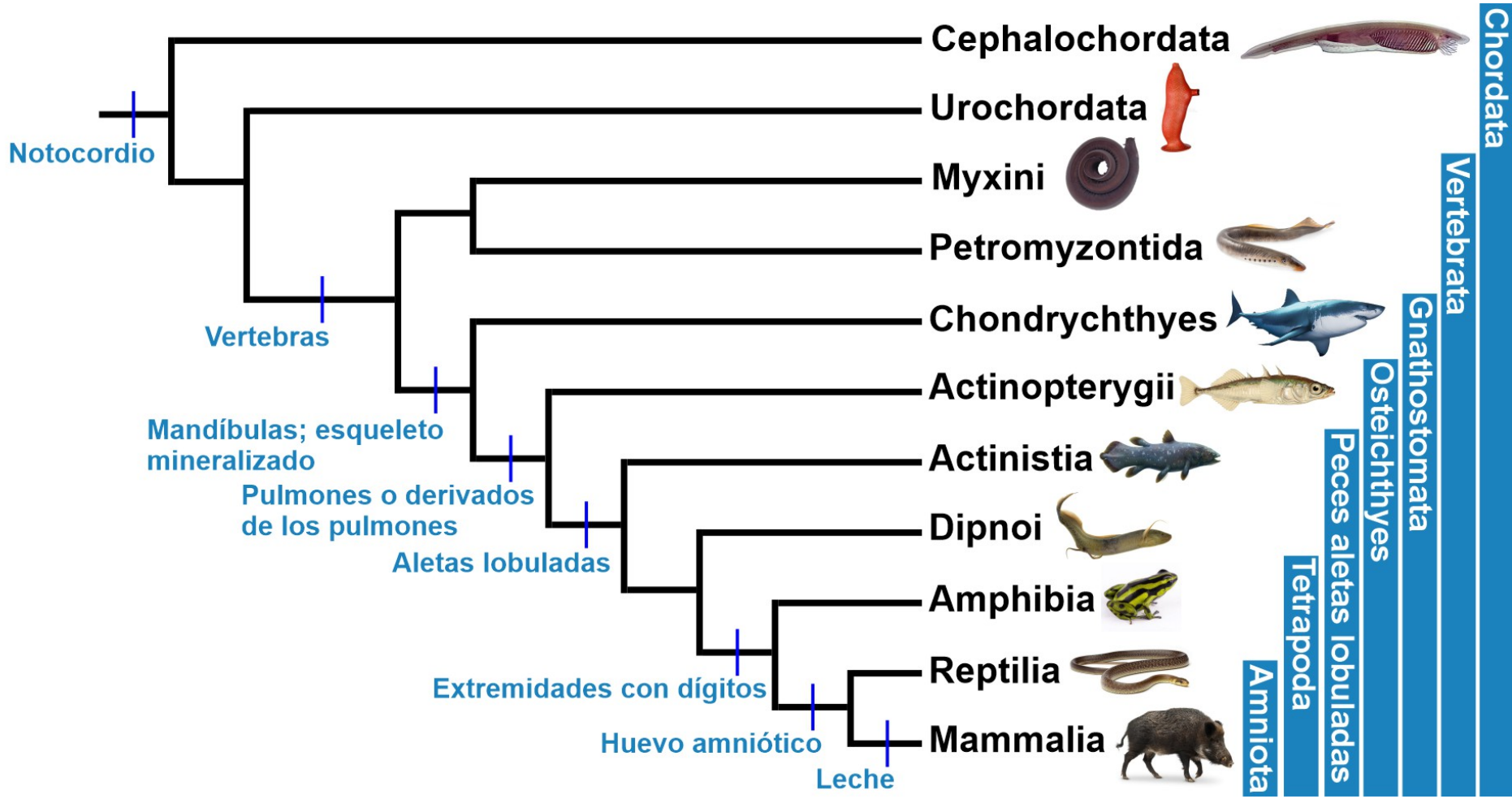
PHYLUM CHORDATA

Tema 4.2

- Mayor grupo de deuterostomados
- Morfologías muy diferentes = ecológicamente significantes
 - Importancia similar a Mollusca y Arthropoda

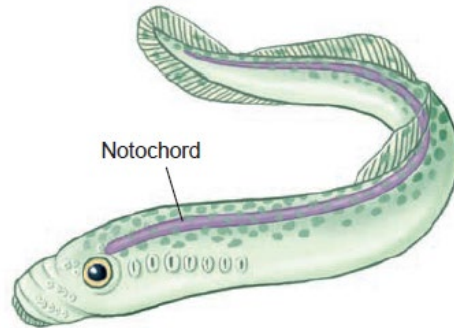
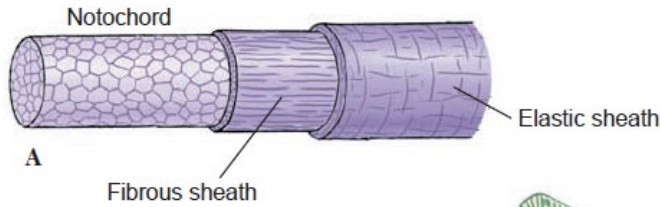
Dos grupos:





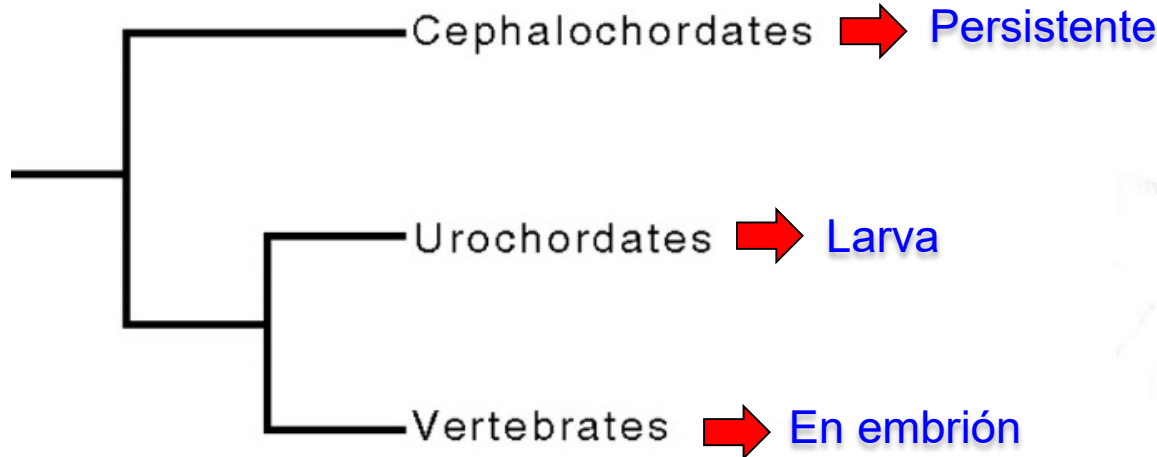
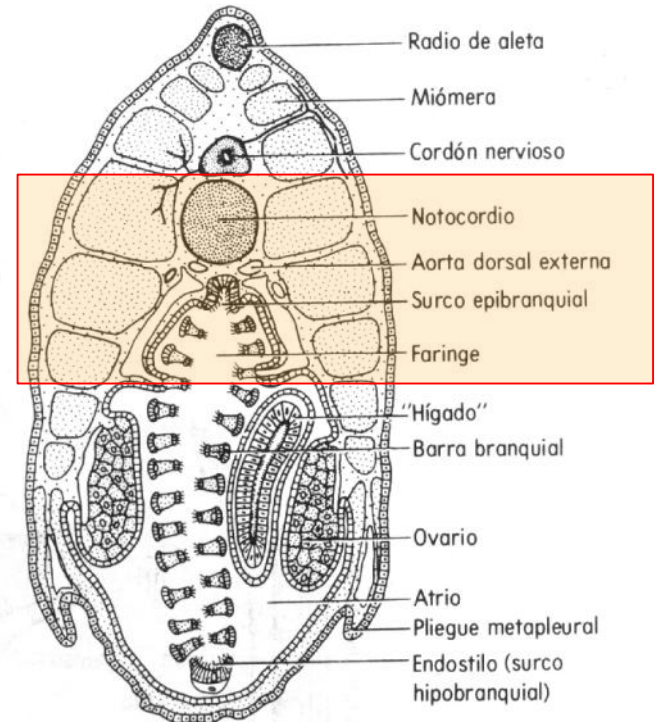
Definición de Chordata:

NOTOCORDIO (al menos en algún ciclo de vida):



Bastón cartilaginoso a lo largo del cuerpo

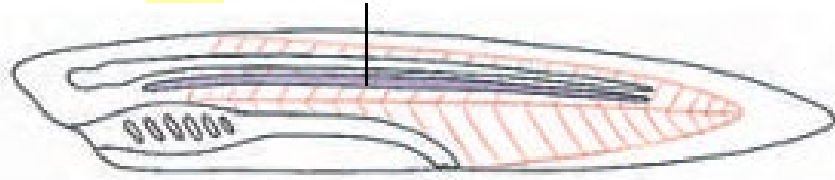
- Rigidez y sostén al cuerpo en la locomoción



5 sinapomorfías de Chordata

1

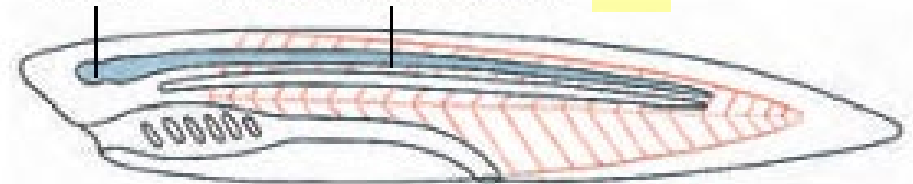
Notochord



2

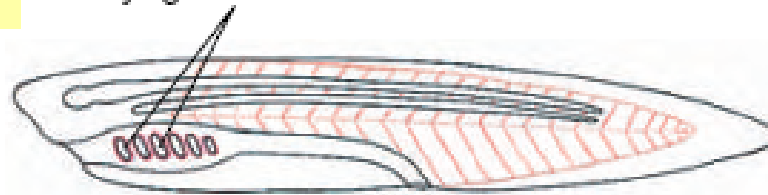
Brain

Dorsal nerve cord



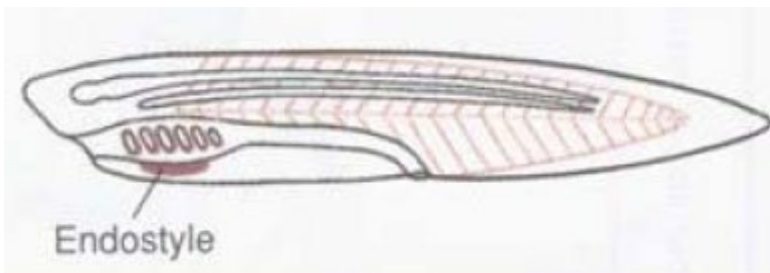
3

Pharyngeal slits between aortic arches

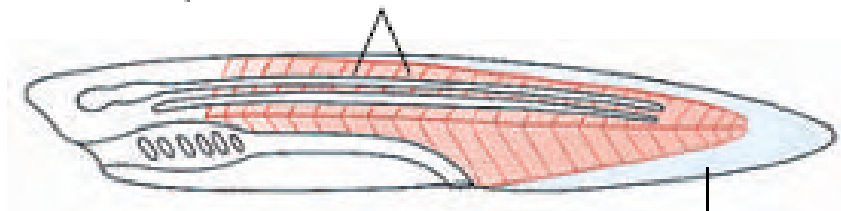


4

Endostyle



Segmented myotomes between septa anchored to notochord

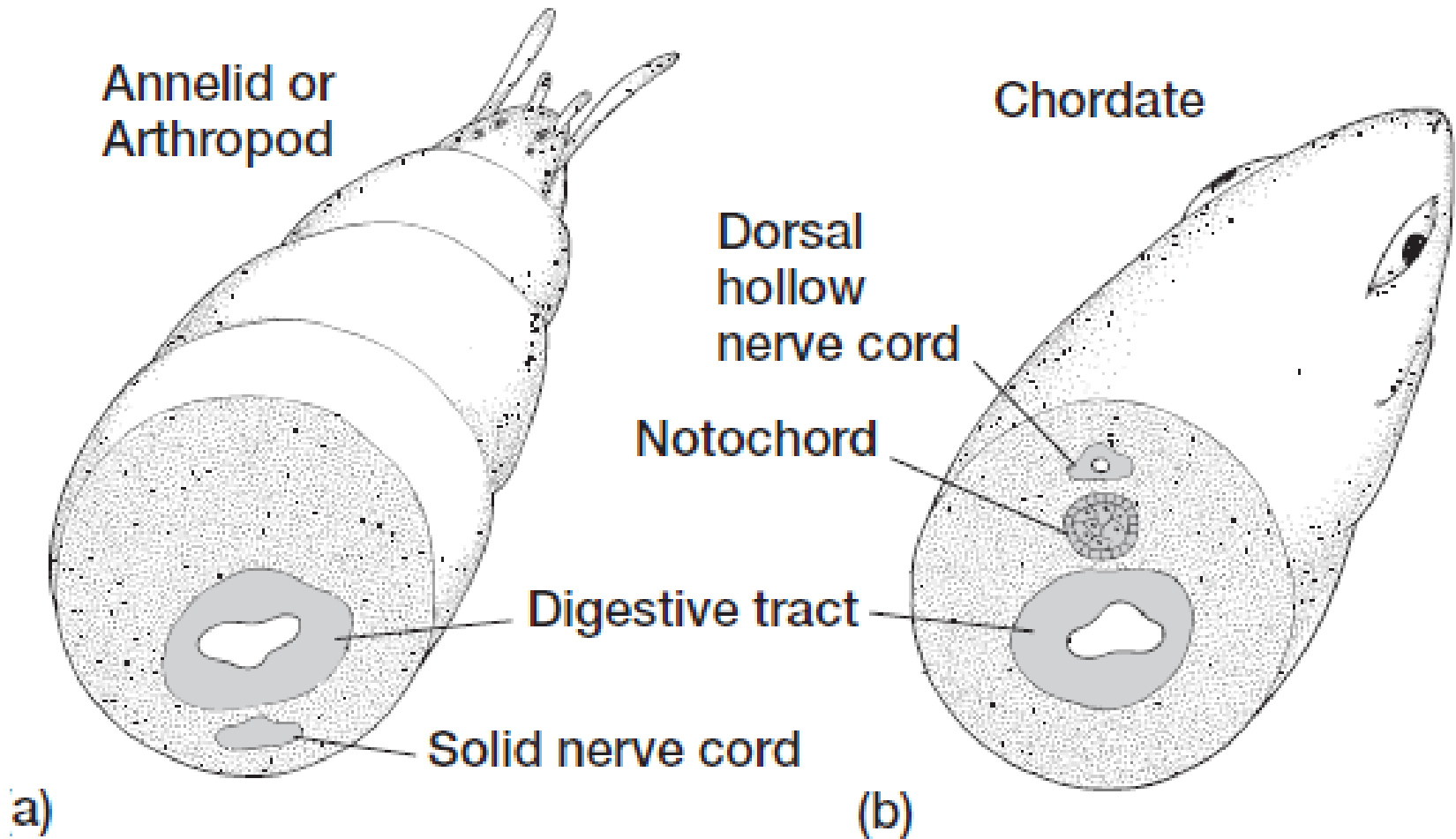


Postanal tail

5



Comparación de la posición y estructura del cordón nervioso entre invertebrados y cordados



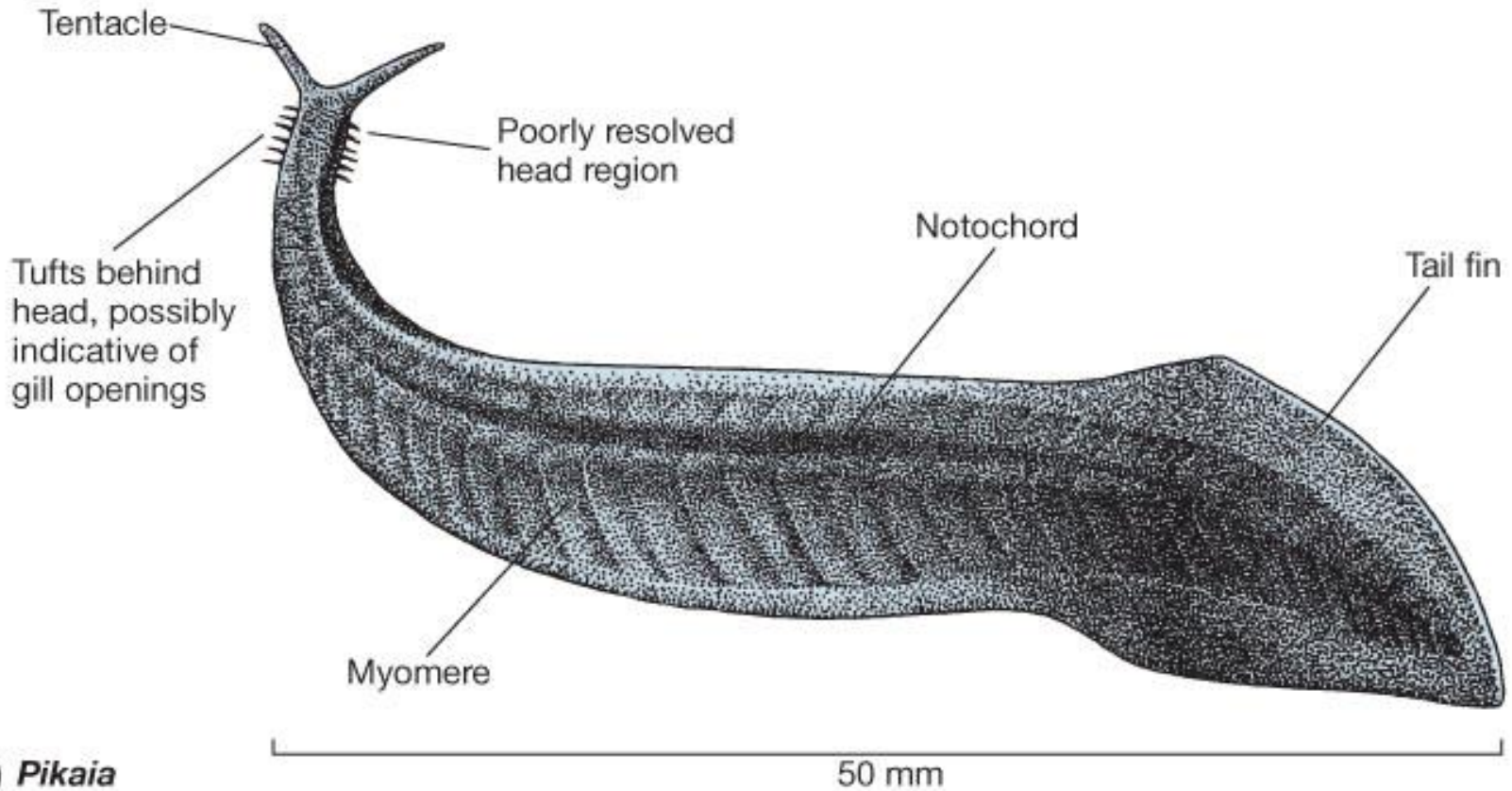
Cordados: Cordón nervioso en posición dorsal y hueco

Características de Chordata

- Simetría bilateral
- Metamería y euceloma
- Triblásticos
- Músculos segmentados
- Corazón ventral; circulación cerrada
- Sistema digestivo completo (boca-ano)
- Endoesqueleto óseo y/o cartilaginoso (en vertebrados con endoesqueleto)

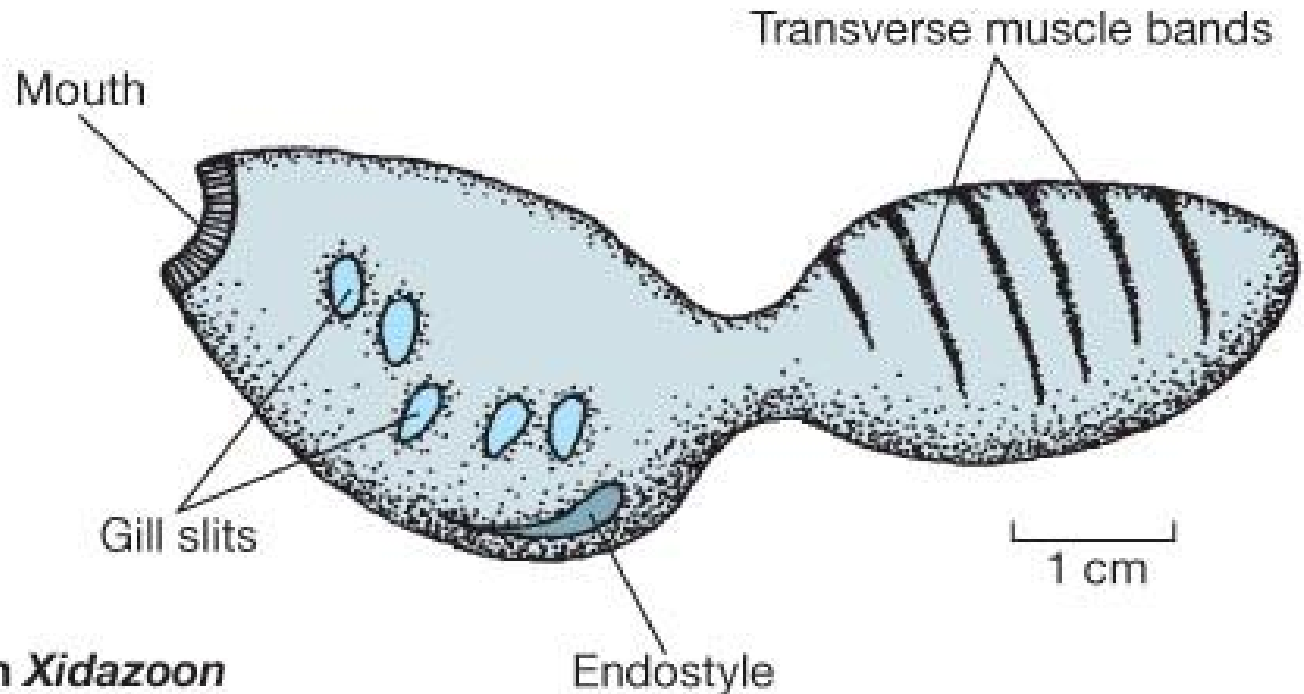
Historia fósil

- Cámbrico
- Mas antiguo conocido: *Pikaia* (quizás Cephalochordata)
 - ✓ Miómeros + notocordio



(a) *Pikaia*

- *Xidazoon* (Urochordata)
 - ✓ Sin notocordio (presentes otras sinapomorfías)



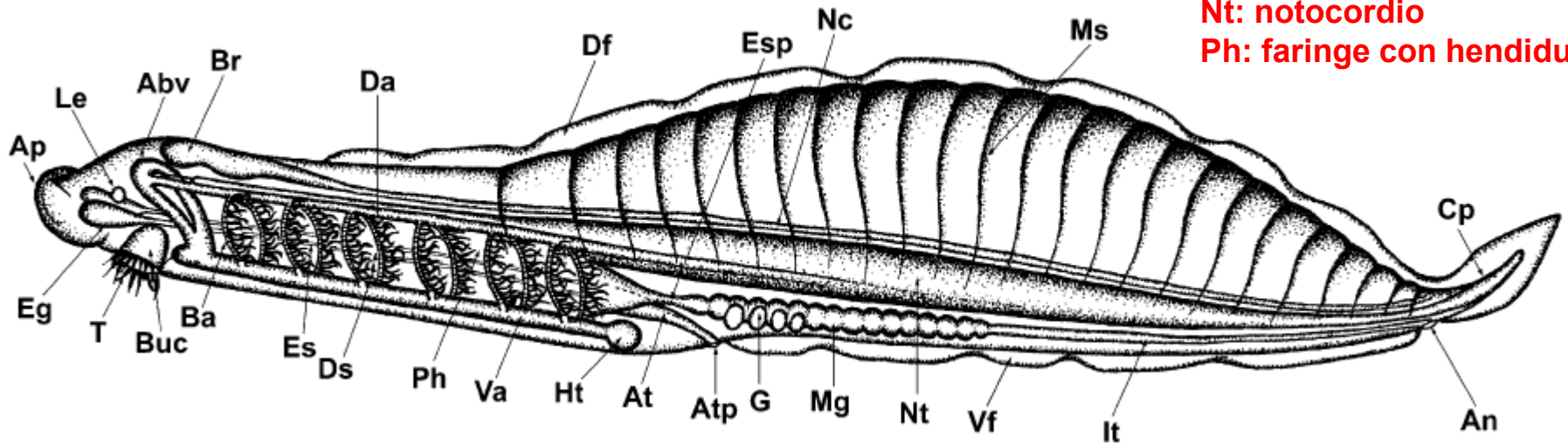
(b) The vetulicolian *Xidazoon*

Según Pough *et al.* 2009

- *Haikouella*

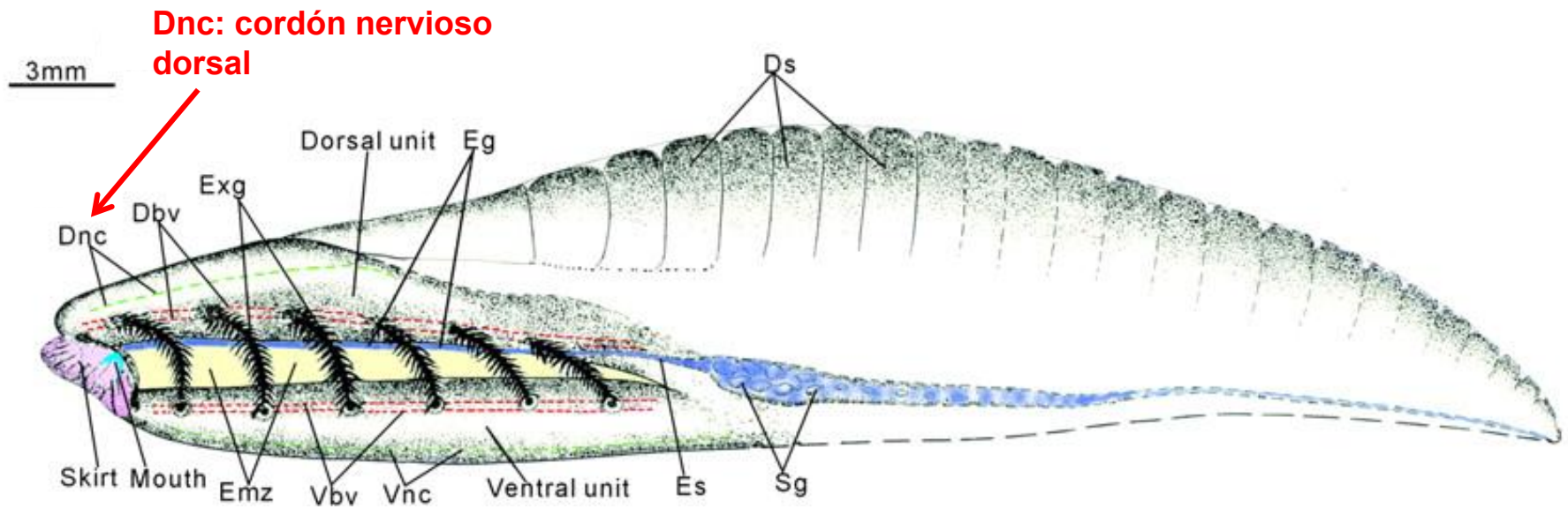
- ✓ ≈ grupo hermano de Craniata
 - Encéfalo grande
 - Ojos definidos
 - Barras branquiales engrosadas (≈ cresta neural) ↙
 - Labio superior (como en larvas de lampreas)

Nc: cordón nervioso dorsal
Cp: cola postanal
Es: endostilo
Nt: notocordio
Ph: faringe con hendiduras



Haikouella lanceolata

Chen et al. 1999



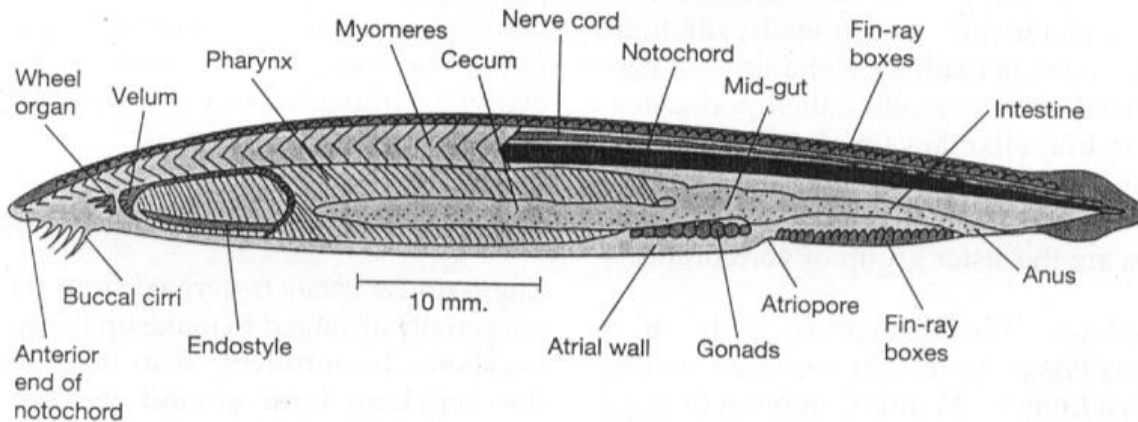
Haikouella jianshanensis

Shu *et al.* 2003



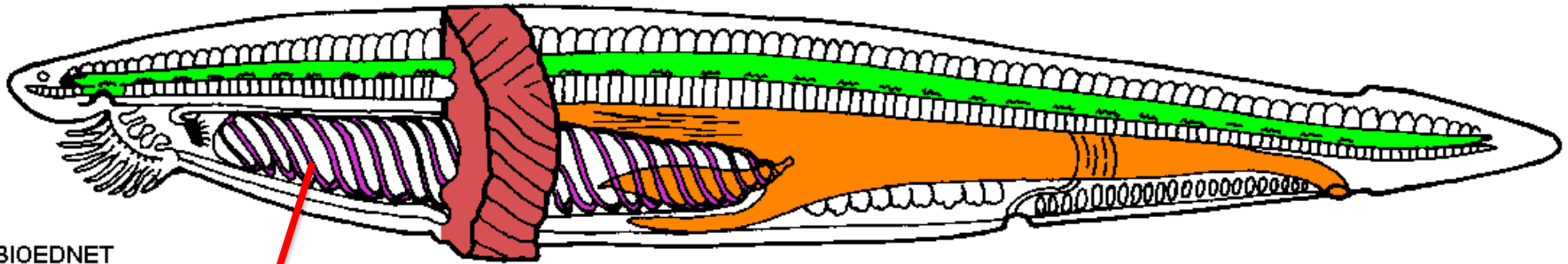
Subphylum Cephalochordata

- \approx 22 spp. marinas.
- Modelo : *Branchiostoma lanceolatum* (lanceta o anfioxo)
 - ✓ No hay cabeza diferenciada
- Sedentarios y bentónicos; natación libre
 - ✓ Con notocordio (presentes otras sinapomorfías)



Yu (2010; Zoology113: 1-9

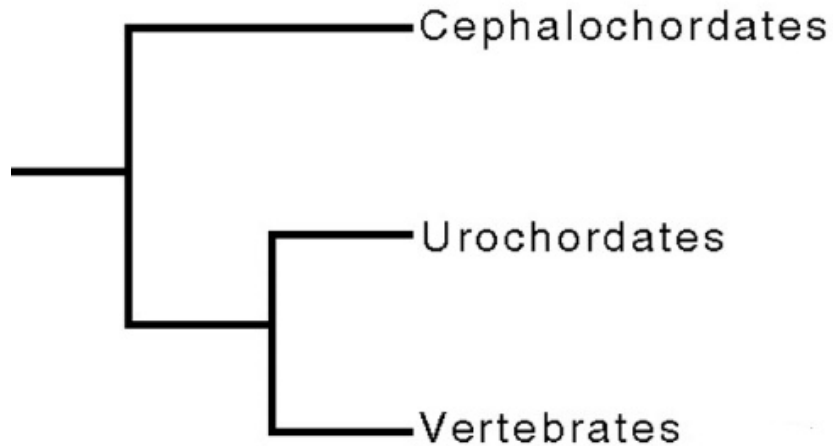
© BIOEDNET



Miómeros musculares

Faringe filtradora

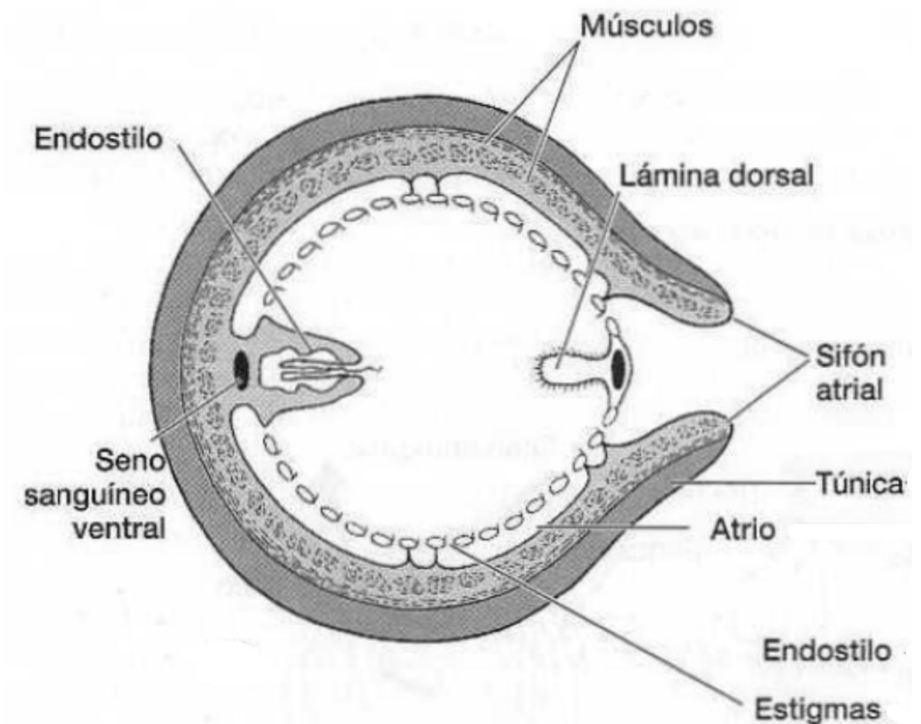
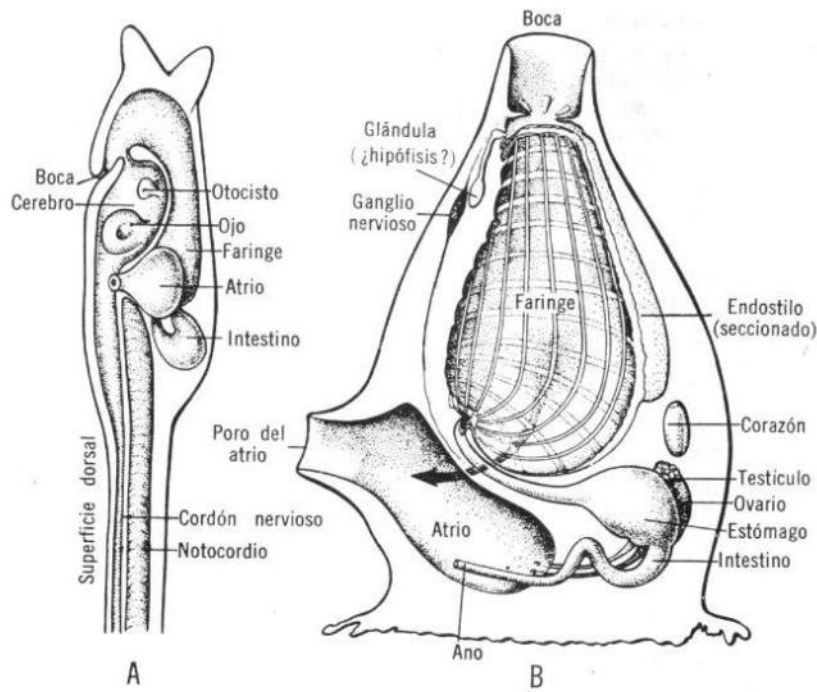
Relaciones filogenéticas



- Miómeros
- Aorta dorsal y corazón ventral
- Células excretoras
- Aleta caudal similar

Subphylum Urochordata

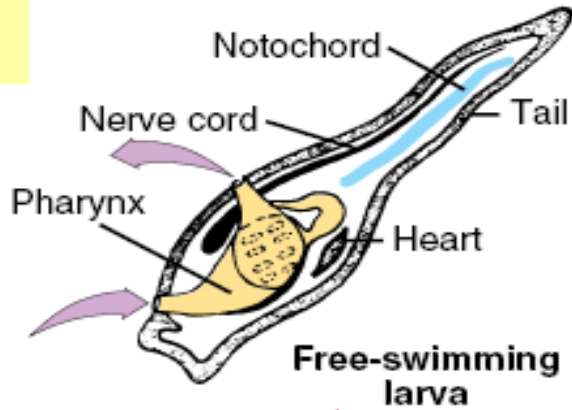
- Tunicados, ascidias o vejigas de mar (≈ 2000 spp. marinas)
- Filtradores en una faringe en forma de saco perforado
- > adultos son sedentarios (≈ 100 spp. de vida libre = Larvacea)
 - ✓ Larvas de vida libre (sufren metamorfosis)



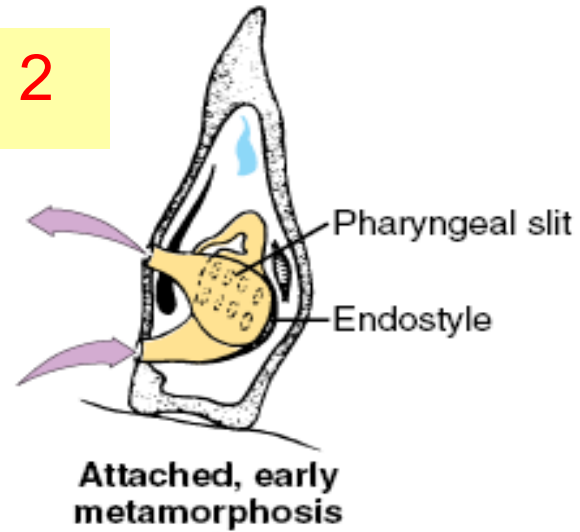
Vista dorsal de un corte transversal en un tunicado sésil (Kardong 2007)

- > adultos son sedentarios (≈ 100 spp. de vida libre = Larvacea)
 - ✓ Larvas de vida libre (sufren metamorfosis)

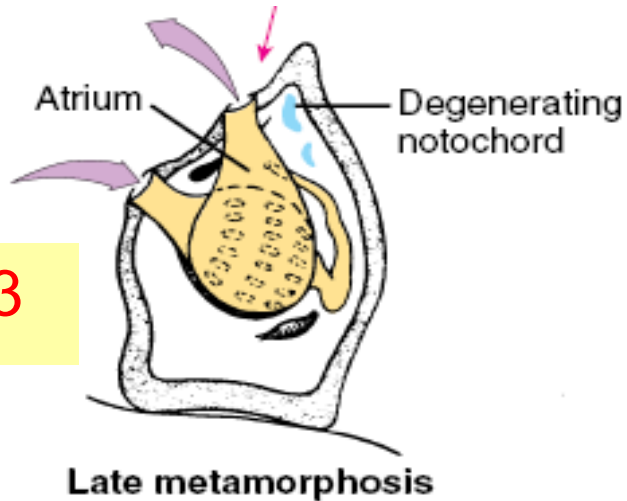
1



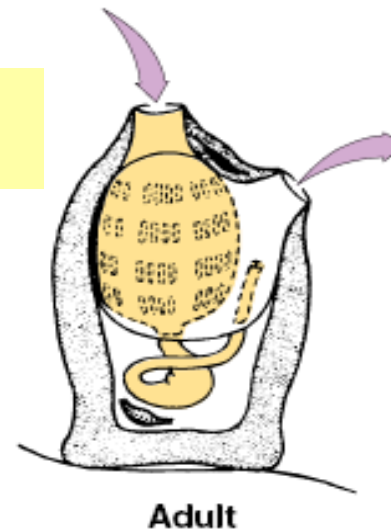
2



3

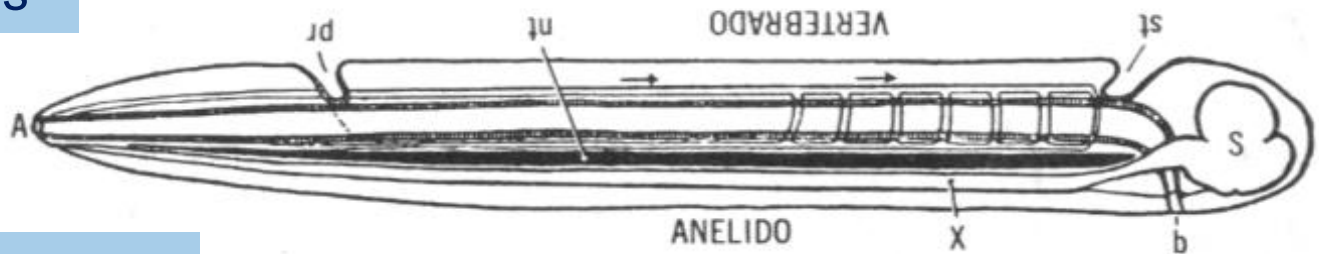


4



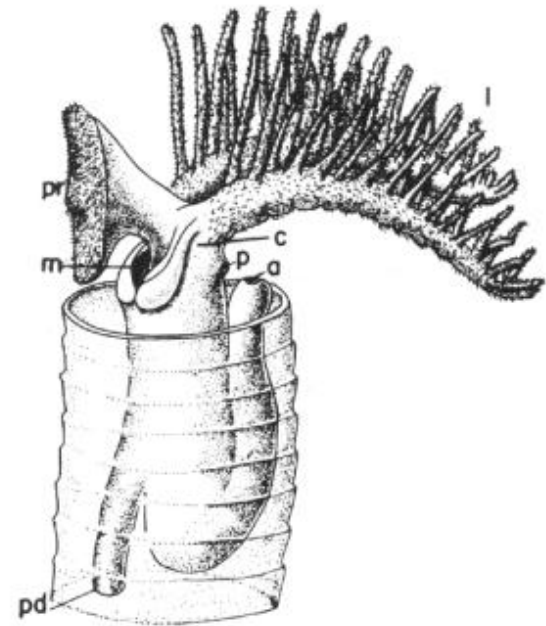
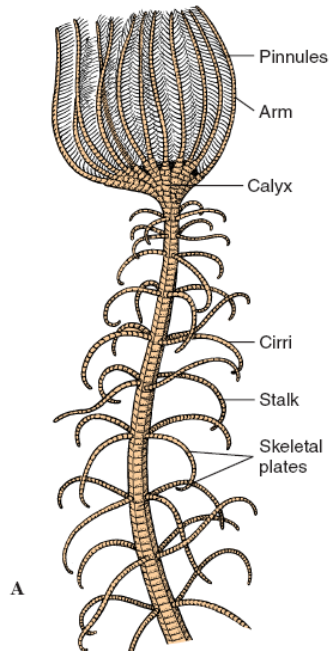
Origen y filogenia: 2 teorías

Teoría de anélidos



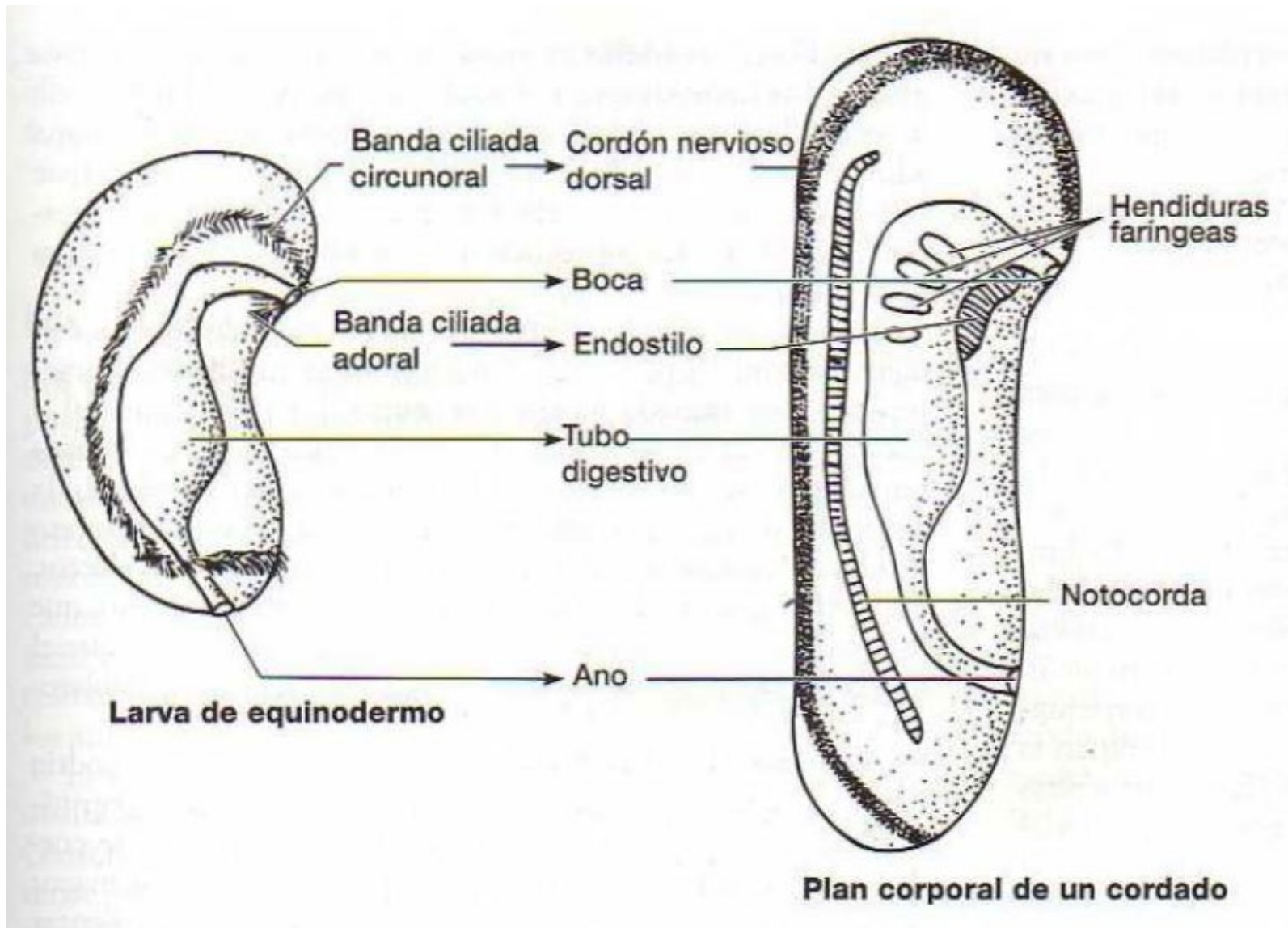
Teoría de equinodermos
(similitud en larvas)

Equinodermo crinoideo



Hemicordado pterobranquio

Teoría de equinodermos (similitud en larvas)



Chordates

PROTOSTOMES

"Protochordates"

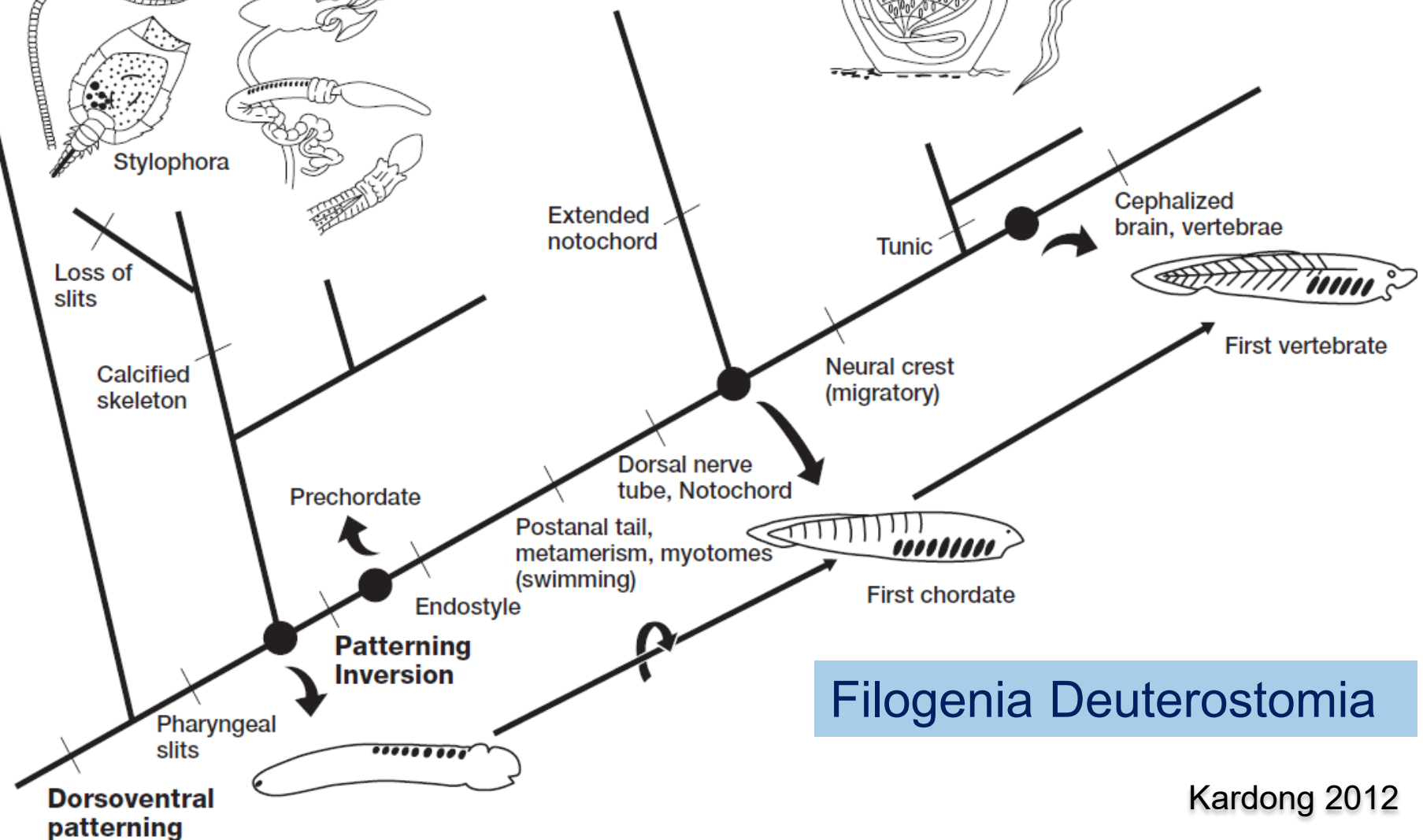
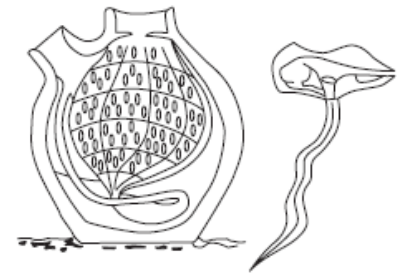
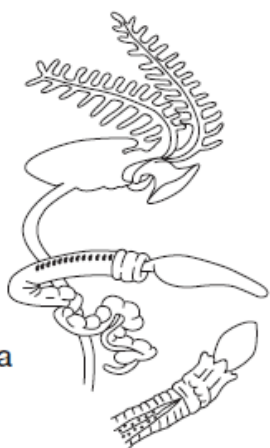
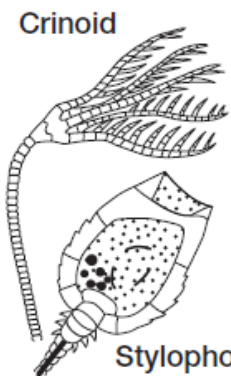
Echinodermata

Hemichordata

Cephalochordata

Urochordata

Vertebrata



Filogenia Deuterostomia

Hipótesis resumida de W. Garstang (1928)

